

being considered unpatentable over Nakamura and Kenney in view of Lipscomb et al., U.S. Patent No 4,879,318 (hereinafter "Lipscomb").

Applicant has canceled claims 5-15, without prejudice, and has amended claim 1. Claims 16-25 have been added.

In the Office Action mailed March 15, 2002, claims 1, 5, 6, 7, and 12 were found to be unpatentable under 35 USC 102(b) as being anticipated by Nakamura. Nakamura shows a trench formed in a substrate. However, the trench does not extend all the way through the substrate. Applicant has amended claim 1 to make it more clear that the via has a hole that "extends from one side of the substrate to an opposite side of the substrate". A via extending from one side of the substrate to an opposite side of the substrate allows for a different system architecture than one that has a via that merely extends to devices buried within the substrate. For example, a via that extends from one side of a substrate to an opposite side of the substrate allows for devices to be mounted on both sides of the substrate.

Applicant has added language similar to that of amended claim 1 to new independent claim 23. Claims 5, 6, 7 and 12 were canceled. Applicant respectfully submits that claims 1 and 23 are now allowable under 35 U.S.C. 102(b) over Nakamura. Because claims 2-4, 16-22 depend from claim 1, and claims 24-25 depend from claim 23, Applicant submits that claims 2-4, 16-22 and 24-25 are also now allowable.

In the Office Action mailed March 15, 2002, claims 2, 4, 8, 13 and 14 were rejected under 35 USC 103(a) as being considered unpatentable over Nakamura in view of Kenney. As previously discussed, claims 2 and 4 depend upon amended claim 1, and Applicant submits are now allowable. Additionally, it would not have been obvious to combine Nakamura and Kenney to arrive at the invention as claimed by claims 2 and 4. Kenney describes an array waveguide grating, a structure that lies in the plane of the


substrate. It is a significantly different structure than that of claims 2 and 4. Claims 8, 13, and 14 have been canceled, without prejudice.

Claims 3, 9-11, and 15 were rejected under 35 USC 103 (a) as being considered unpatentable over Nakamura and Kenney in view of Lipscomb. As previously discussed, claim 3 depends upon amended claim 1, and Applicant submits that claim 3 is now allowable. Applicant further submits, that it would not have been obvious to combine Nakamura, Kenney and Lipscomb to arrive at the invention of claim 3, because the references are technically disparate. Lipscomb discusses using a mold to form a lens for eyeglasses and the like. Lipscomb does not discuss forming a lens on a substrate, or with reference to a waveguide. Claims 9-11, and 15 have been canceled without prejudice.

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Very truly yours,
BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN

Dated: July 15, 2002



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Version with Markings to show changes made

1 1. (Amended) A method of making a photonic via comprising:
2 making a hole in a substrate, wherein the hole extends from one side of the
3 substrate to an opposite side of the substrate;
4 depositing a cladding material into the hole;
5 depositing an optical core material into the hole.

1 2. The method of claim 1 further comprising:
2 forming a lens on top of the optical core material.

1 3. The method of claim 2 further comprising:
2 depositing a polymer on top of the optical core material; and
3 curing the polymer to form a lens.

1 4. The method of claim 1 further comprising:
2 polishing the substrate.

Claims 5-15 were canceled, without prejudice.

1 16. (New) The method of claim 1, wherein making the hole in the substrate is
2 achieved by etching.

1 17. (New) The method of claim 16, further comprising:

2 forming a lens on top of the optical core material.

1 18. (New) The method of claim 17, further comprising:

2 depositing a polymer on top of the optical core material; and

3 curing the polymer to form the lens.

1 19. (New) The method of claim 18, further comprising:

2 polishing the substrate before forming the lens.

1 20. (New) The method of claim 16, wherein the depositing the cladding material into

2 the hole is achieved by depositing an oxide into the hole.

1 21. (New) The method of claim 20, wherein the depositing the optical core material

2 in the hole is achieved by depositing a first polymer in the hole.

1 22. (New) The method of claim 21 further comprising:

2 depositing a second polymer over the first polymer; and

3 curing the second polymer to form a lens on top of the optical core material.

1 23. (New) A substrate comprising:

2 a hole extending from a first side of the substrate to a second side of the
3 substrate;

4 a deposition layer of cladding on an inner surface of the hole; and

5 a deposition layer of optical core material encased by the deposition layer of
6 cladding.

1 24. (New) The substrate of claim 23, wherein the optical core material is a polymer.

1 25. (New) The substrate of claim 24 further comprising:

2 a polymer lens formed on one end of the deposition layer of cladding and the
3 deposition layer of optical core material.